

## CLAIMS

What is claimed is:

1. An apparatus to charge a power supply, the apparatus comprising:  
a resonance circuit including a capacitor and a primary inductor coupled to the capacitor, the primary inductor further coupled to receive power from a source; and  
a secondary inductor to receive power transmitted from the primary inductor by induction, the secondary inductor coupled to the power supply so that power induced in the secondary inductor causes the power supply to be charged.
2. An apparatus as recited in claim 1, wherein the resonance circuit has a natural resonant frequency, and wherein the source oscillates approximately at the natural resonant frequency of the resonance circuit.
3. An apparatus as recited in claim 1, wherein the capacitor and primary inductor are coupled in series.
4. An apparatus as recited in claim 1, further comprising a charging circuit coupled between the power supply and the secondary coil, the charging circuit to control the transfer of power to the power supply.
5. An apparatus as recited in claim 1, wherein the power supply is a rechargeable battery.

6. An apparatus as recited in claim 5, wherein the apparatus is contained within a housing configured to receive a portable cordless device that contains the rechargeable battery.

7. An apparatus to charge a power supply, the apparatus comprising:  
a source to generate an oscillating output at a frequency;  
a resonance circuit including a primary coil and a capacitor coupled in series with the primary coil, wherein the resonance circuit has a natural resonant frequency substantially equal to the frequency of the source, the primary coil further coupled to the source; and

a secondary coil to receive power, through induction, from the primary coil, the secondary coil further coupled to the chargeable power supply to cause the chargeable power supply to be charged from the power induced in the secondary coil.

8. An apparatus as recited in claim 7, further comprising a charging circuit coupled between the power supply and the secondary coil, the charging circuit to control the transfer of power to the power supply.

9. An apparatus as recited in claim 7, wherein the power supply is a rechargeable battery.

10. An apparatus as recited in claim 9, wherein the apparatus is contained within a housing configured to receive a portable cordless device that contains the rechargeable battery.

11. A charging apparatus for charging a rechargeable battery, the charging apparatus comprising:

a source generating an output oscillating at a frequency;

an LC series resonance circuit coupled to receive the output of the source, the LC series resonance circuit including a primary coil and a capacitor coupled to the primary coil, wherein a first terminal of the capacitor is coupled to a first terminal of the primary coil and a second terminal of the capacitor is coupled to a reference point, a second terminal of the primary coil is coupled to the output of the source, the LC series resonance circuit having a natural resonant frequency substantially equal to the frequency of the output of the source;

a secondary coil to receive power, through induction, from the primary coil, the secondary coil further coupled to the charging circuit to cause the rechargeable battery to be charged from the power induced in the secondary coil; and

a battery charging circuit coupled between the secondary coil and the rechargeable battery to control charging of the rechargeable battery.

12. A charging apparatus as recited in claim 11, wherein the apparatus is contained within a housing configured to receive a portable cordless device that contains the rechargeable battery.

13. A charging apparatus as recited in claim 12, wherein the natural resonant frequency,  $f_r$ , of the LC series resonance circuit is characterized as  $f_r = 1 / (2\pi \sqrt{LC})$ , where L is an inductance value of the primary coil and C is a capacitance value of the capacitor.